

New York
State Water Supply Commission



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State of New York

[Into which the former State Water Supply Commission has been merged]

NEW YORK STATE WATER SUPPLY COMMISSION.

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NEW YORK STATE WATER SUPPLY COMMISSION.

The New York State Water Supply Commission is charged by law with a broad range of jurisdiction over the administration of the waters of New York State. Its powers and duties fall naturally into three classes, relating to (1) the distribution of sources of municipal water supply, (2) the improvement of the flow of rivers, and (3) the development of water power.

In view of the present widespread interest in the conservation of natural resources and of the rapidly growing appreciation of water as the most important economic mineral of the earth, the Commission welcomes this opportunity briefly to set forth, through the courtesy of the New York State Fair Commission, both the scope of its jurisdiction and to some small extent an illustration of the nature of its work. The Commission hopes in this way to give a better idea to the people of the State of the importance to the general welfare of the proper administration and conservation of the State's water resources. In the following brief summary the three divisions of the Commission's authority will be touched upon in turn.

I. WATER SUPPLY.

Previous to the establishment of the Commission on June 3, 1905, the law of the State permitted any city, village or other municipal corporation to acquire or condemn lands for sources of water supply practically at will and without regard to whether its plans were just and equitable to other municipalities and their inhabitants that might be affected, in the present or future, by the execution of the proposed plans. Thus a large city armed with the power of eminent domain to condemn land for public use might take territory from a smaller community regardless of the present or prospective needs of the latter for the water sources so taken. It can readily be seen that such a course might involve a serious menace to the future growth of the smaller community. Fear of such procedure led to the passage of special prohibitory laws for many localities, particularly those adjoining New York

city, against what was feared might be the ruthless exercise of the great power of the larger community. The effect of such legislation, involving as it did so much hostility between the different localities of the State proved that the current practice afforded but a partial, inadequate and unfair method of administering the distribution of sources of water supply.

Provision for a pure and adequate supply of water for domestic purposes for all its inhabitants is one of the first duties of the sovereign State. Through its vast effect upon public health alone, the general use of pure water is a matter of the gravest importance to every man, woman and child regardless of local divisions of government or groupings of citizens. It is thus well established in our public law that the control of sources of water supply is a State function, and that any civil division or local group must apply to the central State government and receive permission to take its just share from the State's total supply of this indispensable resource. It must, therefore, be evident that the State should aim toward an ideal of administration of its water resources which should secure fully and impartially the rights of each and every one of its inhabitants and all of their local groupings to a just and equitable share of the public waters. This problem becomes especially complicated under our modern conditions of civilization, which in promoting the growth of enormous cities, call for engineering works of the greatest scope and magnitude for the purpose of providing the requisite quantity of pure and wholesome water. The present vast undertaking of the city of New York in going ninety miles or more north of its boundaries to secure from the Catskill mountains, at a cost of at least one hundred and sixty-one million dollars, a supply of water adequate to its needs for a short period in the future only, is the most recent and familiar illustration of this fact. In this great project as well as in the case of many others not as great, there is involved a large element of hardship and damage to the locality invaded, in the necessary taking of private property for the larger public purpose of constructing immense storage reservoirs, which permanently occupy the lands thus acquired and furnish no considerable means of support and prosperity to the region, as is the case when land is acquired for railroad purposes.

ESTABLISHMENT OF STATE COMMISSION.

It was under the realization of these important principles that the Legislature of 1905 wisely determined to delegate its power of control over the distribution of sources of water supply to a permanent commission which, by the aid of steady and special consideration of this subject, should become expert in controlling such distribution so as to insure equity among all the inhabitants and civil divisions of the State, and as a consequence the unimpeded prosperity and growth of each and every community. The law, therefore, provides that no municipality of the State or any person or waterworks corporation engaged in supplying the inhabitants of any municipal corporation with water shall have power to acquire lands for any new or additional sources of water supply until its maps, plans and profiles have been submitted to and approved by the State Water Supply Commission. In passing upon plans thus submitted to it, the Commission is empowered to determine:

1. Whether the proposed plans are justified by the public necessities of the city, village, locality or company making the petition.

2. Whether such plans are just and equitable to each and every other municipality of the State and to the inhabitants thereof, careful consideration being given to future as well as present needs of water supply.

3. Whether such plans make fair and equitable provision for the determination and payment of any and all damages, both direct and indirect, which will result from the execution of such plans.

Under the operation of this law, which it is believed set a precedent among the States of the Union in the general State administration of water supply resources, there has resulted a smoothly adjusted progress in the development of public water supplies without further need of appeal to the Legislature for the drastic prohibitory special legislation formerly so much sought after.

APPROVAL OF CATSKILL AQUEDUCT

The first important case to come before the Commission for its official approval was the application of the city of New York to

build its Catskill aqueduct and to take several entire watersheds in the Catskill mountains, where an enormous artificial lake would be constructed sufficient to provide 500 million gallons per day to be carried through a ninety-mile concrete aqueduct across fields, through mountains and under rivers to the distant city. After extended and careful consideration of all the manifold interests involved in this remarkable project and after a protracted series of hearings, the suggestions of this Commission with regard to the protection of the rights of all other municipalities and people affected were incorporated into law and the project received the sanction of this board. To quote from the first annual report of the State Water Supply Commission: "Under the authority thus given, the city of New York has entered upon its work of constructing the greatest municipal water plant in an interior county one hundred miles distant without friction with the people of Ulster county, but with their apparent sympathy and help; a great contrast to the feeling existing in Dutchess and Suffolk counties, which procured legislation adverse to the city of New York."

Subsequently, many other applications have been passed upon from villages and cities, large and small. By the accumulation of special knowledge resulting from comparing the problems of different localities, the Commission has been able to bring to the aid of the smaller communities of the State, a fund of experience and counsel which in not a few instances has proved of great benefit and assistance. The Commission aims to make its practice simple, expeditious and inexpensive. The engineer of the board passes carefully upon the technical points involved in every application. All maps and documents filed in connection with every application are, as required by the statute, open at all times during office hours to public inspection at the office of the Commission in the Lyon Block at Albany.

II. RIVER IMPROVEMENT.

When the Commission had exercised for about a year the jurisdiction over the sources of water supply which has been set forth in the foregoing, its powers were extended in a new and important direction by chapter 418 of the Laws of 1906, which transferred

to it all the powers and duties up to that time exercised by the River Improvement Commission, which was created originally by chapter 734 of the Laws of 1904. The River Improvement Commission had been established largely as a result of the valuable report on the causes and remedies of floods in New York rivers made by the Water Storage Commission, which was appointed in 1902 and automatically ceased to exist with its report to the Legislature in 1903. The act creating the River Improvement Commission gave it power to make preliminary plans and surveys for the regulation of the course of any stream, the restricted or unrestricted flow of which should be shown on petition to be a menace to the public health and safety. After the Commission had prepared final plans under a closely prescribed course of procedure each such project was to be referred to the Legislature for its approval by special act. After such approval the Commission was empowered to carry on the work of straightening, dredging, construction of dykes, or building of dams and reservoirs as called for by the plans and to assess the cost of the same, in proportion, on the property benefited. To provide for carrying on the work until such assessments should be collected, the Commission was given authority to issue certificates and bonds to pay the cost thereof.

WATER STORAGE.

In succeeding to the exercise of these powers of river regulation, the State Water Supply Commission has come into intimate contact with the problem of "water storage." A number of river improvement petitions involved the construction of reservoirs in the Adirondack forests. It was believed by many that in the exercise of its police power the State could construct reservoirs which would flood State forest lands in spite of the constitutional prohibition that "the lands of the state now owned or hereafter acquired, constituting the forest preserve as now fixed by law, shall be forever kept as wild forest lands," and that "they shall not be leased, sold or exchanged or be taken by any corporation, public or private, nor shall the timber thereon be sold, removed or destroyed." The River Improvement Commission had considered the constitutional question thus involved, and having reached the

conclusion that the force of this prohibition was paramount to all exercise of the authority to protect the public health and safety, it had declined further to consider any petitions involving the construction of reservoirs on State forest lands.

CANASERAGA CREEK IMPROVEMENT.

In the meantime, however, an important project calling for a different treatment had arisen in the proposed improvement of the Canaseraga creek in Livingston county, and the State Water Supply Commission inherited and actively carried on the consideration of the problems, both of the locality and of the law itself, which arose in connection with this project. The Canaseraga creek is the most important tributary of the Genesee river. For the last fifteen miles of its course it flows through a broad fertile valley between Dansville and Mount Morris. Owing to deforestation of the hillsides and the progressive silting up of the channel, the banks of the stream throughout this broad flat area have actually become higher, in places, than the surrounding lands. In times of flood the stream overflows and the water stands for days at a time over these broad areas, in large part destroying their value for agriculture. The project of improvement, which, after the due course of public hearings and consideration by the Commission prescribed by the law, received the official approval of the Legislature, contemplates the straightening and dredging of the creek so as to shorten by several miles the course of the water from Dansville to the junction with the Genesee at Mount Morris. At the same time lateral ditches will be constructed to carry off the overflowing waters from the lower portions of the valley. There is some of the best farming land of the State in this valley, and in the execution of the project New York is solving a most interesting and important problem of reclamation.

GENESEE RIVER IMPROVEMENT.

The Commission has also undertaken the consideration of the proper steps for the improvement of the flow of the Genesee river itself, and the prevention of the floods which periodically devastate this valley and bring losses, inconvenience and damage

to the inhabitants of Livingston and Monroe counties between Mount Morris and the city of Rochester. This problem is closely inter-related with the construction of a great reservoir at Portage which has been reported upon by the Commission in connection with its water power studies, as further referred to below. It is believed that in the construction of this reservoir on the Genesee and the improvement of the Canaseraga creek as projected, the entire problem of preventing floods and reclaiming farm lands throughout the most important sections of the Genesee watershed will be solved and material assistance given to the city of Rochester in connection with its sewage disposal problems.

RAQUETTE POND IMPROVEMENT.

Chapter 284 of the Laws of 1909 provides that upon petition of the board of trustees of any village, the Commission may undertake the improvement of a watercourse adjacent to such village.

In accordance with this act a petition has been made by the village of Tupper Lake, and arrangements are now under way to construct a dam in the Raquette river to raise the level of the water adjacent to said village, improving the surroundings and facilitating navigation from the village into Big Tupper Lake.

III. WATER POWER.

In the enactment of chapter 569 of the Laws of 1907, empowering and directing the State Water Supply Commission "to devise plans for the progressive development of the water powers of the state under state ownership, control and maintenance, for the public use and benefit, and for the increase of the public revenue," the State of New York became a pioneer in the movement for State control of this vastly important industrial resource.

NEED OF RIVER REGULATION.

While in earlier days many investigations were made of the possibility of constructing great reservoirs for the conservation of river flow, the emphasis has always been laid on the possibility of improving navigation and supplying water for the great canal system of the State, and later, on the prevention of floods. There

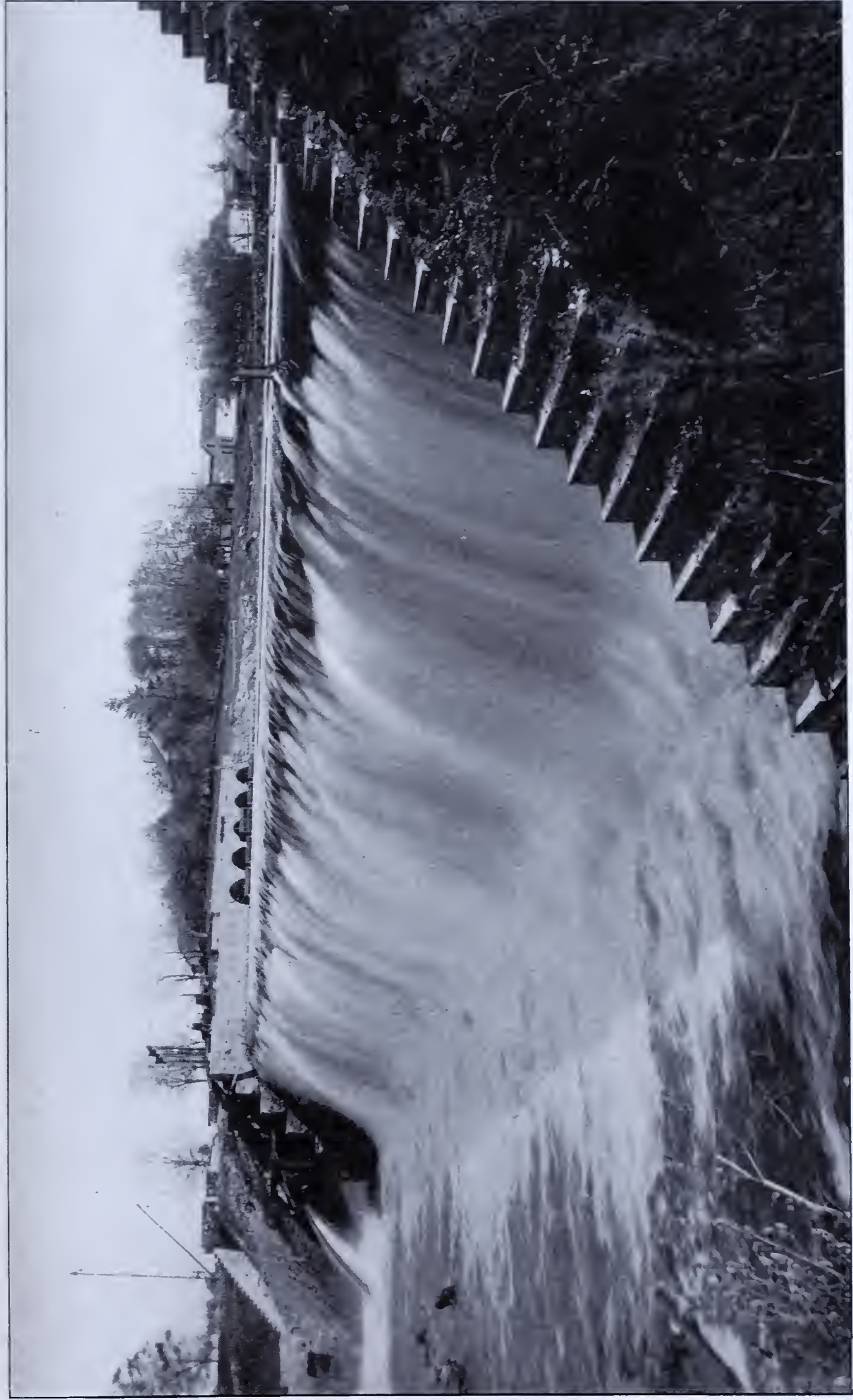
was always an undercurrent, however, of interest in the improvement of developed and undeveloped water powers, and of late years this interest has greatly broadened. In the section of the Hudson river above the head of navigation at Troy, and below the confluence, at Hadley, of the Sacandaga, its largest tributary except the Mohawk, are to be found thirteen of the most important developed waterpower sites in the State, constituting in the aggregate, a group of power second in New York only to that of Niagara. These great mills depend upon the flow of the Hudson for their efficiency. The passage of its spring flood waters, which have been known to reach the enormous rate of seventy thousand cubic feet per second, means almost literally the discharge into the sea annually of many thousands of dollars. Great sums are involved in the expensive construction of auxiliary steam plants required to maintain the output of the mills when the summer flow of the river falls, as it did in 1908, to seven hundred cubic feet per second, or one one-hundredth part of the maximum recorded flood discharge. Such conditions of irregular flow are typical in a greater or less degree of all streams and all mills throughout the State, and they not only keep down the efficiency of developed plants but effectively discourage the development of new sites and the consequent introduction of new industries and new sources of wealth into the State. It is a well recognized engineering principle that the construction of large storage reservoirs on the upper watersheds of such streams will operate to retain practically the entire flood waters, which when discharged under careful control during the summer months, will regulate the flow so as to maintain a uniform degree of power throughout the year.

While the industrial and commercial interests have been anxious to bring about this much needed development of the water powers of the State, a large body of public spirited citizens have effectively protested against this being done for the exclusive benefit of a few individuals. Intimately involved in the opposition to reservoir building has been the equally effective public sentiment which insists that the State forest lands in the Adirondacks shall be forever preserved to their use and no encroachments on this public domain hereafter permitted. Regrettable examples of the careless construction of storage reservoirs in forest lands have



RAQUETTE RIVER — HANNAWA FALLS DAM.

A scarcity of water, October, 1908, which would not occur after regulation of the river by storage reservoirs.



RAQUETTE RIVER — HANNAWA FALLS DAM.

An abundance of water in the spring being wasted because of no storage provisions.

furnished instances of flooded shore lines, which with their acres of dead standing timber are revolting to the sentiment of every observer and occasion the most natural and widespread protest against reservoir construction in general.

Under these conditions the development of water power in New York State, through the regulation of stream flow, has languished. In measure with the growing scarcity of coal and consequent rise in value of water power, the sentiment has taken strong root that this condition of repression is regrettable and costly from the point of view of the general welfare of the State. The efforts of the Commission have been to devise a plan for the progressive development of the rich latent water power of the State, which shall insure the least possible encroachment on State forest lands, the absolute and unconditioned care and methods in the construction of reservoirs which are needed to make them ornamental instead of hideous, and the participation of every individual in the commonwealth in the benefits resulting from the use and development of this source of public wealth.

STATE CONTROL OF POWER DEVELOPMENT.

It was on the far-sighted recommendation of Governor Hughes in his message of January 2, 1907, that the Legislature took the first steps to consider "whether it is not advisable to provide a more comprehensive plan (of water administration) embracing in a clearly defined way the matter of water storage and the use of water courses for purposes of power." In the passage of the act mentioned above, chapter 569 of the Laws of 1907, is to be found the answer of the Legislature to the Governor's suggestion that "the entire question of the relation of the state to its waters demands more careful attention than it has hitherto received in order that there may be an adequate scheme of just regulation for the public benefit." That the public interest is the first object aimed at is evident in the title of the bill. Further examination of the law shows that it is contemplated that any municipality or civil division of the State may petition the Commission for the development of water powers in its neighborhood, setting forth the public purposes to be served by such development. The Commission is empowered on its own initiative to investigate and

collect information regarding all the water powers of the State and to make complete detailed plans for their development with as much care as if the work was to be immediately undertaken. The main object of the bill, however, is indicated in its command that the Commission shall present to the Legislature with its final report a comprehensive plan for the development by the State and under State supervision and control of any or all of its latent water powers. It is clearly the intent of the statute that a single coherent plan should be devised which will, nevertheless, permit consecutive and progressive development by units, as the demand arises from year to year and as experience perfects methods. After three seasons of detailed and extensive engineering studies, the results of which have been reported from time to time, the Commission is now preparing to submit to the Legislature the outlines of a comprehensive plan of development, together with a draft of a bill providing for carrying its recommendations into effect.

STUDIES OF THE COMMISSION.

While it cannot be hoped within the limits of this paper to present the results of all the Commission's studies of this subject, nevertheless, a brief summary of its most important findings may be of interest at this time. The Commission has determined that beyond all doubt the Hudson, the Genesee and the Raquette are the three principal rivers of the State where development should first be undertaken.

In the case of the Hudson river it has been found that adequate storage to insure a reasonably complete regulation can be secured by the construction of reservoirs of thirty-two billion cubic feet capacity on the Sacandaga river, another of sixteen billion cubic feet, embracing the present water surface of Brant, Schroon and Paradox lakes and a series of smaller reservoirs on the upper Hudson to give the required additional capacity of sixteen billion cubic feet. Each and any one of these reservoirs, if separately constructed, will add its own proportion of benefit independently of the others.

On the Genesee it has been found that one great reservoir at Portageville can be constructed, above and outside of the limits of Letchworth park, which will contain eighteen billion cubic feet



SACANDAGA RIVER — PROPOSED RESERVOIR BASIN.
Looking upstream. White dotted line shows location of the proposed Conklingville dam.

of water and result in a possible power development of thirty thousand continuous horsepower at Portageville as well as completely preventing the disastrous effects of the floods which now sweep through the Genesee valley. Alternately the greater part of the benefit could be conferred on present power developments at Rochester, which would receive great assistance in any case, even if the first object were the new development at Portage.

The Raquette river, likewise, is capable of complete control through the construction of a great reservoir at Tupper Lake, to be supplemented later by a series of nine or ten smaller reservoirs with a total capacity of twenty billion cubic feet.

In addition to these, which may be considered the chief fields of investigation, the Commission has carefully examined the watershed of the Delaware river in New York and has made less detailed but adequate preliminary investigations on the other watersheds of the State.

The Commission has taken careful census of the developed water powers of the State and has found a total of 618,942 water horsepower in use. On the basis of the estimates made on the rivers already studied in detail, the Commission has reached the belief that with a complete system of stream flow regulation by the construction of necessary reservoirs, there could be developed in the State, a total of no less than 1,500,000 horsepower, exclusive of the Niagara and St. Lawrence rivers.

STATE LANDS REQUIRED.

This development, as stated, would involve a complete system of water storage reservoirs, and this means necessarily the flooding of certain small areas of State lands. The Commission has taken special pains to survey and estimate the amount of State forest lands which would be required for such a complete system of reservoirs. Its preliminary estimate was published in the fourth annual report and is indicated by the accompanying diagram. It will be seen from this diagram that of the entire 1,322,776 acres of State lands included within the boundaries of the Adirondack park a total of only 20,136 acres, or less than 1.6 per cent. will be required for the most complete system of reservoirs which the State is ever likely to be called upon to con-

struct. The State Forst, Fish and Game Commission is authority for the estimate that in the forest fires of the single season of 1908, 26,700 acres of State timber land were burned over. Considering these proportions and the primary fact that no such storage reservoirs can be or should be constructed within State lands except by the State itself, under the most careful conditions and restrictions to secure the integrity of the forests, it will be seen that the Commission is wholly justified in its urgent recommendations that immediate steps be taken toward the amendment of the Constitution to permit such construction by the State. The surveys of the present season are being directed in large part toward the completion and verification of these estimates of the amount of State lands which will be required and with the presentation of this additional data, the Commission expects to renew and emphasize its recommendations on this point. For it believes that the time has come for the adoption by the Empire State of a true policy of harmonious conservation of all its resources, whether of forest or water, for the use and benefit of all the people.

TOTAL AREA OF ADIRONDACK PARK

331,356+ ACRES

NY STATE LANDS IN ADIRONDACK PARK 1,322,776 A's

TOTAL LAND REQUIRED FOR PROPOSED RESERVOIRS IN THE ADIRONDACKS

Estimated by STATE WATER SUPPLY COMMISSION 78,700 A's

Estimated by G.W. RAFTER C.E. 1906 38,900 A's

STATE LAND REQUIRED FOR PROPOSED RESERVOIRS

Estimated by STATE WATER SUPPLY COMMISSION 20,136 A's

Estimated by G.W. RAFTER C.E. 16,508 A's

Timber land approximately 5000 Acres or $\frac{1}{10}$ of 1% of total State Lands in the Adirondack Park.

Studies made by the State Water Supply Commission during seasons of 1907-1908 show that these Estimates cover the Maximum amount of Land that would be required for a most complete system of Storage Reservoirs in this region.

FOREST FIRES of 1908

Second
burning
147,000 A's

TOTAL AREA BURNED OVER, 177,000 A's

STATE LANDS BURNED OVER, 59,488 A's

STATE "TIMBER LANDS" BURNED OVER, 26,700 A's

From estimates made by the
State Forest, Fish and Game Dept.

STATE WATER SUPPLY COMMISSION
NEW YORK
COMPARATIVE EXTENT OF LANDS
FOR
PROPOSED STORAGE RESERVOIRS
IN THE
ADIRONDACK REGION

DECEMBER 1908

1 Sq. Inch = 100,000 Acres

Milton H. C. Bell Consulting Engr.

